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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,548	04/02/2004	Martin Ceredig Roberts	MI22-2550	2546
21567	7590	05/19/2005	EXAMINER	
WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201			PERALTA, GINETTE	
			ART UNIT	PAPER NUMBER
			2814	

DATE MAILED: 05/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/817,548	<b>Applicant(s)</b> ROBERTS ET AL.	
	<b>Examiner</b> Ginette Peralta	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 55-67 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 55-67 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/2/04, 9/8/04</u> | 6) <input type="checkbox"/> Other: ____  |

DETAILED ACTION

*Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 55-58 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 55-58 are rejected because the limitation of the pair of capacitor containers having a first container disposed at least partially over a first conductive line comprised by the pair of conductive lines and a second container disposed at least partially over a second conductive line comprised by the pair of conductive lines in lines 8-11 of claim 55 renders the claim indefinite as it does not clearly defines whether the first container is disposed at least partially over only one of the pair of conductive lines or both of the pair of conductive lines and whether the second container is disposed over the second conductive line or over the pair of conductive lines. It will be the Examiner's interpretation that what the claim refers to is a first container at least partially over a first conductive line from the pair of conductive lines and the second container at least partially over a second conductive line from the pair of conductive lines.

Claim 56 is rejected because in line 4 of the claim it reads "forming a second opening over within the masking layer over the second conductive line", which renders

the claim indefinite because it is not clear whether the second opening is over the masking layer or within the masking layer over the second conductive line. It will be the Examiner's interpretation that what the claim refers to is forming a second opening within the masking layer over the second conductive line.

*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 55-67 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Cho (U. S. Pat. 6,448,145 B2).

Regarding claim 55, Cho discloses in Figs. 3a-3e a method of forming a capacitor that comprises providing a substrate 30 having a node location 30a disposed between a pair of conductive lines (*word line*); forming a contact structure 34 in electrical communication with the node location 30a, the contact structure 34 extending laterally over at least a portion of each of the conductive lines (*word line*) as shown in Fig. 3c; and forming a pair of capacitor containers 37a in electrical communication with the node location 30a, the pair of capacitor containers 37a having a first container disposed at

least partially over a first conductive line and a second container disposed at least partially over a second conductive line, the first container being spaced from the second capacitor container.

Regarding claim 56, Cho discloses in Figs. 3a-3e that the method of forming the pair of capacitors comprises forming a masking layer 36 over the substrate 30 and over the conductive lines (*word line*); forming a first opening within the masking layer 36 over the first conductive line; forming a second opening within the masking layer 36 over the second conductive line; and depositing a conductive material 37 within the first and second openings, the conductive material being in direct physical contact with the contact structure 34.

Regarding claim 57, Cho discloses in col. 6, lines 24-31, that the conductive material 37 comprises polysilicon.

Regarding claim 58, Cho discloses in col. 6, lines 32-39 that the method further comprises lining the pair of containers with a dielectric material 39; and forming a capacitor electrode layer 40 over the dielectric material and within the first and second containers 37a.

Regarding claim 59, Cho discloses in Figs. 3a-3e a method of forming a capacitor structure that comprises providing a substrate 30 having a substrate node location 30a; forming a contact structure 34 in electrical communication with the substrate node location 30a, the contact structure being disposed between two conductive lines (*word line*), and extending elevationally above and laterally outward over the two conductive

lines (*word line*); forming a first container 37a having a continuous conductive layer 37 defining a first interior area (*as shown in Fig. 3d*), the conductive layer being joined with the contact structure 34, the first container being disposed at least partially over one of the two conductive lines (*word line*); forming a second container 37a having a continuous conductive layer 37 defining a second interior area (*as shown in Fig. 3d*), the conductive layer being joined with the contact structure 34, the first and second interior areas being spaced apart from one another in a non-overlapping relationship; and forming a dielectric layer 39 and a conductive capacitor electrode layer 40 disposed operably proximate the first container, the second container, and portions of the contact structure 34, as disclosed in col. 6, lines 32-39.

Regarding claim 60, Cho discloses in Fig. 3e that the containers are elongate and extend along generally parallel central axes.

Regarding claim 61, Cho discloses in Fig. 3e that the capacitor comprises only two containers 37a laterally separated by a dielectric region 39, at least one of the containers being elongate and generally tubular in shape as shown in Fig. 4.

Regarding claim 62, Cho discloses in Figs. 3a-3e a method of forming a DRAM circuitry that comprises providing a substrate 30 having a first and second spaced apart node locations 30a; forming a first storage capacitor in electrical communication with the first node location 30a and comprising first and second containers 37a, the first container being at least partially disposed over a first conductive line (*word line*), the second container being disposed at least partially over a second conductive line (*word*

*line*); forming a second storage capacitor in electrical communication with the second node location 30a and comprising third and fourth containers 37a, the third container being at least partially disposed over a third conductive line (*word line*), the fourth container being disposed at least partially over a fourth conductive line (*word line*); lining the first, second, third, and fourth containers with a dielectric layer 39; and depositing a conductive capacitor electrode layer 40 over the dielectric layer 39 and within the containers.

Regarding claim 63, Cho discloses in Fig. 3e that the containers are generally elongate.

Regarding claim 64, Cho discloses in Fig. 3e and 4 that the containers are generally elongate and extend along respective central axes at least two of which being generally parallel.

Regarding claim 65, Cho discloses in Figs. 3e and 4 that the containers are generally elongate and extend along respective central axes which are generally parallel with one another.

Regarding claim 66, Cho discloses in Figs. 3e and 4 that the containers are generally elongate and extend along respective central axes, and wherein each container comprises a respective portion which has a generally circular transverse cross section.

Regarding claim 67, Cho discloses in Figs. 3e and 4 that each container 37a has a volume which is substantially equivalent relative to each other.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginette Peralta whose telephone number is (571) 272-1713. The examiner can normally be reached on Monday to Friday 8:00 AM- 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GP

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